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INVENTOR-INFORMATION:
NAME CITY STATE
COUNTRY RULE-47
IHM, JI SOON SEOUL KR

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ABSTRACT:

Transistor, is disclosed, including a base having a bundle of (n,n) nanotubes,
and an emitter and a collector connected to opposite sides of the base each
having (n, m, n-m.noteq.3l) nanotubes, whereby
substantially reducing a device

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(54) **ARRAY OF SINGLE-WALL CARBON NANOTUBES**

(75) Inventors: **Richard E. Smalley**, Houston, TX (US); **Daniel T. Colbert**, Houston, TX (US); **Hongjie Dai**, Sunnyvale, CA (US); **Jie Liu**, Houston, TX (US); **Andrew G. Rinzler**, Houston, TX (US); **Jason H. Hafner**, Houston, TX (US); **Ken Smith**, Houston, TX (US); **Ting Guo**, La Jolla, CA (US); **Pavel Nikolaev**, Houston, TX (US); **Andreas Thess**, Martinsried (DE)

Correspondence Address:
Hugh R. Kress
Winstead Sechrest & Minick, P. C.
2400 Bank One Center
910 Travis Street
Houston, TX 77002 (US)

(73) Assignee: **William Marsh Rice University**, 6100 Main Street, Houston, TX 77005 (US)

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(57) **ABSTRACT**

This invention relates generally to forming an array of single-wall carbon nanotubes (SWNT). In one embodiment, a macroscopic molecular array is provided comprising at least about 10^6 single-wall carbon nanotubes in generally parallel orientation and having substantially similar lengths in the range of from about 5 to about 500 nanometers.

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(54) CATALYST-INDUCED GROWTH OF CARBON NANOTUBES ON TIPS OF CANTILEVERS AND NANOWIRES

(76) Inventors: **James Weifu Lee**, Oak Ridge, TN (US); **Douglas H. Lowndes**, Knoxville, TN (US); **Vladimir I. Merkulov**, Knoxville, TN (US); **Gyula Eres**, Knoxville, TN (US); **Yayi Wei**, Fishkill, NY (US); **Elias Greenbaum**, Oak Ridge, TN (US); **Ida Lee**, Oak Ridge, TN (US)

Correspondence Address:
UT-Battelle, LLC
111 Union Valley Rd.
PO Box 2008, Mail Stop 6498
Oak Ridge, TN 37831 (US)

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(57) **ABSTRACT**

A method is described for catalyst-induced growth of carbon nanotubes, nanofibers, and other nanostructures on the tips of nanowires, cantilevers, conductive micro/nanometer structures, wafers and the like. The method can be used for production of carbon nanotube-anchored cantilevers that can significantly improve the performance of scaning probe microscopy (AFM, EFM etc). The invention can also be used in many other processes of micro and/or nanofabrication with carbon nanotubes/fibers. Key elements of this invention include: (1) Proper selection of a metal catalyst and programmable pulsed electrolytic deposition of the desired specific catalyst precisely at the tip of a substrate, (2) Catalyst-induced growth of carbon nanotubes/fibers at the catalyst-deposited tips, (3) Control of carbon nanotube/fiber growth pattern by manipulation of tip shape and growth conditions, and (4) Automation for mass production.